Five lithographic plates are added, giving illustrations of ninety-seven species of these fungi. There are also two lists of species: one in which they are arranged under their respective orders or families, the other in which they are grouped according to their nourishing plants. From the latter list it appears that much the largest number of species has been found on the European grape-vine, *Vitis vinifera*, L., whose parasites number one hundred and fifty species. *Vitis Labrusca*, L., stands next, nourishing fifty-four species. Many of these fungi are American.

We consider this work a most valuable addition to mycological literature and an important aid to the student of fungi. It is also a work that commends itself to those interested in grape culture.—CHAS. H. PECK.

NATURAL RADICAL GRAFTING.—Much more wonderful than the "*Natural Grafting*" recorded by the respective editors of the GAZETTE and *Bulletin*, in the September and December numbers, 1877, is the case of Gamo-radical Grafting accidentally produced here in Ames, by Mrs. Dea. Kingsbury, potting two plants of the "Deer's Tongue' and "Rat's-tail" Cactus, resulting in a profuse crop of the latter issuing from the extremity of the leaves of the former! There is no mistake about this, the writer having examined the plants, and secured a specimen, and any one can try the experiment for himself. *It did not result from the effect of pollen, as neither plant was in bloom*, nor indeed has ever bloomed!—R. BURGESS, *Ames, Iowa.*

RECENT PUBLICATIONS.—*American Journal of Science and Arts*, March.—Dr. Gray gives a Supplementary Note to the Review of Darwin's "Forms of Flowers," being an answer to some statements made by Mr. Meehan in the Torrey Bulletin in respect to cross fertilization. The Botanical Necrology for 1877 is also given and contains an unusual number of noted names. Ten names are reported.

The American Naturalist, April.—Rev. E. L. Greene continues his "Rambles of a Botanist in New Mexico," confining himself in this second paper principally to the sylva. Mr. C. G. Pringle has an interesting note on "Cleistogamous Flowers in Danthonia."

Bulletin of the Torrey Botanical Club, February.—Mr. I. H. Hall gives a very interesting account of *Opuntia Ficus-Indica*, DC., of Southern Italy and other Mediterranean countries. Its main use in the Orient is to furnish a hedge, and next to furnish food. Dr. Gray advises some younger botanists to make haste more slowly, making this the basis of some remarks upon Mr. Wolle's papers on Fresh Water Algæ. Jos. Schrenk writes of "The Excentricity of the pith in *Rhus Toxicodendron*." His observation goes to prove that this excentricity is caused by the absorption of water by the lateral rootlets. This more abundant supply of water produces greater activity in the cambium cells, their turgescence would be more intense and the ducts larger than on the opposite side.

Field and Forest, Jan. and Feb.—The Botanical part of this double number is unusually full. Mr. Thomas Morong writes of the Flora of Martha's Vineyard and Vicinity, and also in the "Field Record" notes two forms of *Plantago major* that had been pointed out by Mr. A. Commons, of Centerville, Delaware. An article by Dr. Gray upon the same subject, in the present number of the GAZETTE will be read with interest

The Valley Naturalist, March and April.—This enterprising sheet appears promptly. with every month and bids fair to become a useful medium for scientific notes.

On the Transpiration of Plants, by J. M. Anders, M. D., Ph. D.—A very interesting series of observations is recorded in this paper, showing that, under favorable circumstances, the amount of watery vapor transpired by plants is something wonderful. According to the rate deduced from his experiments the Washington Elm, at Cambridge, not a very large sized tree, would transpire 7¾ tons of watery vapor in twelve hours

(day) of clear weather. Carrying this calculation further we are impressed with the important part that groves and forests play in preserving the humidity of the air.

Notes on Trees and Tree-Planting, by C. S. Sargent.—This paper is considered as supplementary to one contributed by the author to the Report of the Board of Agriculture for the year 1875. In the latter he considered the value of the white ash, white and Scotch pines, European elm, white oak, the hickories, white willow, sugar-maple, and European larch, for New England plantations. The present paper adds to the list the red or Norway pine, the wild black cherry, the American cork, or Western rock elm, and the Ailanthus. The last mentioned tree, the writer thinks, has been at once the subject of more undeserved praise and more ignorant and foolish abuse than any other tree. The paper is well worth a careful perusal.

Botanical Directory for America, 1878.—Mr. W. H. Leggett has done a very great favor to Botany in publishing this very full directory. It contains the names of nearly 1,000 American botanists and is invaluable to botanists desiring information or exchanges, to say nothing of those of us who publish for the botanical Fraternity. The third part, relating to libraries, herbaria, gardens and catalogues of value, will probably be ready about the beginning of May. The price is 40 cents for one copy; three copies for $1.00; twelve copies for $3.00. Address Wm. H. Leggett, 54 East 81st street, New York City.

Transactions of the Massachusetts Horticultural Society, 1877, Parts I and II.—Besides reports of committees and prizes offered and received, we find some very interesting botanical information. "Fertilization and cross-fertilization" and "Injurious and other Fungi," are given in the form of lectures and then discussed.

Sur l'existence de Races Physiologiques dans les Especes Vegetales a l'etat spontane, par M. Alph. DeCandolle, January, 1878.—M. DeCandolle has published before some observations on the same subject. MM. Naudin and Radlkofer experimenting at Collioure and Munich have reached results confirmatory of those published by M. DeCandolle. In the present paper the author brings together the two sets of experiments, and after having shown the results, adds some remarks upon the physiological differences in vegetables of the same form, and the condition of the science in respect to the questions of the origin of these differences. The modification of species under the influence of climate is a very important question, and the author considers the observations too few as yet to be able to hazard many deductions. The method of experiment was as follows: Seeds of the same species were obtained from as widely separated localities as possible, and subjected to the same treatment. The times of their blooming, and their various sizes were noted and compared. The results show quite a diversity both in the time of blooming and in the size and vigor of the plants. The plants experimented with by M. DeCandolle were a dozen in number, but only two gave satisfactory results for comparison, *Senecio vulgaris* and *Trifolium repens*. Of the plants experimented with by MM. Naudin and Radlkofer, several were ruled out as being unsatisfactory, leaving only two that could be properly used, *Calendula arvenis* and *Sonchus oleraceus*. The two following conclusions are deduced from the experiments: I. That some seeds of the same species coming from distant countries, sowed together, exposed to the same influences, do not produce individuals that grow in absolutely the same manner. II. That in certain species, notwithstanding a similarity of external forms, the difference from the vegetation of the originals is better characterized than in others.

Rapport sur le jardin experimental de M. Jordan, par Alph. DC., February, 1878.